

Decision Document Designating Potato Knoll for inclusion as an Environmental Sensitive Area in the Lake Cumberland 2009 Master Plan Update

INTRODUCTION. Due to historical competing interests related to the best long-term public use of Potato Knoll, the proposal to designate Potato Knoll as an Environmental Sensitive Area (ESA) in the 2009 Master Plan Update for Lake Cumberland, and comments received during the public interest review of that document, this decision document was prepared to set forth the rationale for finalizing this designation. Because of the controversial nature of any decision concerning the designation of the island, it was felt that a full history, background, and factors involved in the decision should be included in the Master Plan Update. The specifics of past proposals to develop the island for commercial purposes, and related experiences at other District lakes, are given solely to allow an understanding of the character of the changes that would likely occur should such a development be authorized and to set forth the Corps' statutory obligations to consider the overall public interest in its determinations. Hopefully, the discussion below will also help to illuminate the procedures behind the Corps' decision making process.

BACKGROUND. Potato Knoll is an island approximately 25 acres in size, located near Lee's Ford Marina in the middle portion of Lake Cumberland near Nancy, Kentucky. The island is currently undeveloped and has been protected from human impacts other than foot traffic since impoundment of Lake Cumberland in 1950. Following an expansion of the marina's lease area in or before 1996, the current water portion of the marina's lease area completely surrounds the island. The island itself was specifically excluded from the lease area. The proposal for leasing the island, known as Potato Knoll, was first received in 1999 from the previous owner of Lee's Ford Marina. The proposal included the construction of individual cabins and mooring of a set of "exclusive" floating slips. The island would be accessed by construction of an earth fill causeway capable of supporting vehicular traffic connecting it to the mainland. This proposal was rejected at the project level based on a number of factors, one of which was the presence of a rookery of great blue herons on the island. In 2003, the marina was purchased by its present owner.

Lee's Ford Marina's management approached the staff at Lake Cumberland in 2003 with a proposal to relocate the heron rookery, stating that the purpose of the relocation was not to facilitate development of the island, but to address problems with noise and droppings. Lee's Ford contracted with an internationally-known ornithologist to plan a relocation of the rookery. The proposal, which included cutting of nest trees, actions to repel the birds, and enticement of the birds to an alternative shoreline site, was denied by the district.

The Corps did allow Lee's Ford the use of a peninsula facing the island to attempt to determine if the colony of herons might naturally relocate if artificial nests and decoy birds were placed there. If partially or fully successful, this would indicate that the birds could be adaptable to active management. However, at no time was the Marina assured that if the colony voluntarily relocated that approval would be given to develop the island. The concessionaire was given permission to take appropriate protective measures to prevent the herons from landing on the dock, such as employing noisemakers, using balloons that simulated predators, and other localized deterrent methods that did not include harassing the nesting birds. Possibly as a result of these measures, the herons abandoned the rookery in 2006. However, a number of pairs returned to the area and built nests in the spring of 2007. The rookery continued its recovery through the 2009 nesting season with over 40 nesting pairs.

Lee's Ford Marina submitted a detailed request to develop the island in 2004 which was rejected due to potential overall environmental impacts of the proposal on the island. Lee's Ford revived its request in the fall of 2007, and the district, at request of Division Headquarters, undertook a more detailed analysis of the development request.

LEE'S FORD PROPOSAL. The marina's proposal was to add Potato Knoll to the land portion of the lease area at Lee's Ford Marina. The island would be used for construction of 86 townhouse-style units, each three stories in height including a garage. Units would be of conventional (not modular) construction. Due to the requirements associated with the District's cut and fill policy, and the resulting difficulty of obtaining approval to place a large amount of fill for a causeway to access to the island, the Marina proposed a car ferry and floating golf cart bridge to provide for client access to the island. Site preparation on the island would require excavation of about 120,000 cubic yards of material which would be used as fill for construction of a 200-space public parking lot adjoining the existing large lot next to the launching ramp. A section of floating slips would be anchored immediately in front of the townhouse units on the south side of the island. Use of these slips would be restricted to unit owners, unit renters, or their guests.

According to Lee's Ford, the proposal would provide a unique recreation experience for which there is substantial demand on Lake Cumberland. The marina's management also indicated that the proposed exclusive location of the units on an island represents a desirable image very attractive to potential buyers.

ENVIRONMENTAL CONDITIONS AND POTENTIAL IMPACTS. The District's evaluation of the potential environmental impacts during the requested re-assessment outlines factors related to environmental conditions on Potato Knoll. Apart from the specific impacts of the proposals the district has received, it is clear that recreational development of the island would result in substantial permanent adverse impacts to its environment.

Potato Knoll is an island in Lake Cumberland at normal pool elevations. It is about 25 acres in size as surveyed; however, due to its steep terrain, it actually represents considerably more surface area. The island is oblong in shape, with pointed ends oriented east and west, and has a total change in elevation of 123 feet from the shoreline at normal pool to the peak of its hill. The differing exposures, one long side with northern exposure and one long side with southern exposure, lend themselves to significantly differing forest types and associated plant and animal communities on each side. In addition, the dramatic change in elevation from top to bottom has also contributed to a pronounced diversity of ecotypes governed by both elevation and exposure. Taken as a whole, the island represents an unusual capsule of widely divergent plant communities in a small area – in fact, a microcosm of the variety of such communities in this region of Kentucky. The island has been protected from virtually all human impacts for 59 years, since the impoundment of Lake Cumberland. Its relative isolation from invasive exotic plants through its island geography, its extraordinary exposure and elevation variations, and its freedom from human and domestic animal impacts have resulted in a unique entity. It is unlike the many miles of Lake Cumberland's shoreline because it combines communities typical of 360 degrees of exposure with maximum elevation variation and absence of human impact in one 25-acre area. In common with much of the lake's shoreline, it also represents a high quality of mature hardwood forest rare east of the Mississippi River. These and other factors contribute to the unique nature of Potato Knoll, not simply the presence of the heron rookery.

The Kentucky Nature Preserves Commission (KNPC) has listed Potato Knoll as a significant site/community in its database (listed as an element occurrence – EO) due to its rich and diverse native species. In communication dated April 23, 2009, the KNPC stated that the site would qualify as one of the highest quality in its database if the size of the community was 50 acres or more, required by its ranking criteria. The island contains both Acidic Mesophytic and Acidic Sub-xeric forest community types in good quality, which the KNPC stated added to its significance.

A list of plants identified during a 2005 survey can be viewed at: www.lrn.usace.army.mil/wolmp

The discovery in the late 1990's of a rookery of Great Blue Herons on the northern side of Potato Knoll was significant because at the time it was thought to be the largest such rookery in this region of Kentucky. The Great Blue Heron is a species of special concern as designated by the state. Although recovering from their former low numbers in the mid-twentieth century, the birds are susceptible to habitat loss and pollution impacts. Following Lee's Ford's efforts to gain permission to relocate the herons, an even larger rookery was discovered on a peninsula in Lake Cumberland at White Oak, about four miles from Potato Knoll. While the White Oak rookery is a valuable resource, it does not diminish the value of the Potato Knoll rookery. Loss of the Potato Knoll rookery would adversely impact the total population of Great Blue Herons in the Lake Cumberland area. The birds favor the Potato Knoll site in part because of the availability of the horizontal branches of mature American beech trees on the north side of the island. Beech trees are highly susceptible to disturbance of their shallow roots and damage to their thin bark. Shade tolerant, they are found on relatively cool, damp sites, typically on north-facing slopes. Herons also seek out islands and relatively isolated peninsulas for their rookeries.

Great Blue Herons are large, noisy, social birds that leave substantial droppings. Their calls are loud, especially at dawn and dusk in the spring. In general, their nests are not compatible with human dwellings.

Impacts to the environment of Potato Knoll of the most recent development proposal would include removal of trees and other vegetation on an area estimated to be six to seven acres in size. Vegetation in this area would be replaced by a paved road, paved parking area, buildings, walkways, and other permanent structures. Significant excavation, resulting in the removal of about 120,000 cubic yards of soil and rock, would be required in order to level the site for construction of buildings and roadways. Loss of terrestrial habitat would result from the clearing and leveling of the site. In addition, aquatic habitat south of the island would experience some impacts from runoff both during and after construction. The size and type of the proposed development would inevitably result in informal trails and heavy human usage throughout the island, leading to additional changes in the natural character of the island. Blue Herons, while tolerant of human behavior to a degree, would likely abandon the rookery with the degree of close human interaction.

Potato Knoll, when viewed from any aspect, presents a completely natural scene. Visual impacts from the main lake or from the lake's shoreline, depending on the orientation of development, would be significant, changing the view from that of pristine shoreline to a row of up to 86 townhouses, garages, and parking area, fronted by floating mooring slips, based on the most recent development proposal.

Potato Knoll has not been surveyed for cultural resources, threatened or endangered animals, including bats, or plant species. As recent district experience has shown at Lake Cumberland, heretofore unidentified prehistoric and historic archaeological sites are present in some numbers at the lake.


The District informal evaluation concluded that the addition of Potato Knoll to the marina's lease area also raised concerns about further future impacts to terrestrial resources when additional development is desired or the development proposal is changed. An example might be a decision after construction has begun to eliminate buffer zones or cut trees to provide a view or eliminate heron nesting sites. Because the Corps' concessionaire leases have no provision for assessment of liquidated damages, fines, or other conditions for penalties for violation of the lease or destruction of government property, such violations typically go unpunished. The only tool available to gain compliance is revocation of the lease, typically and rightfully only used in the most extreme cases.

In the District's experience, developments under approved plans often increase, with or without approval, in both scope and impact. The only actions available to the District for such violations are revocation of the lease or prosecution under Title 36, which is generally thought to be inappropriate for violations by

lessees. The assumption is normally made when adding land to a concessionaire lease that long-term impacts will be more significant in scope and more severe than what is proposed at the time of the request.

ENVIRONMENTAL SENSITIVE AREA (ESA) DESIGNATION. A number of islands larger than five acres in size were proposed for designation as ESA's in the 2009 Master Plan Update, for reasons outlined in Section 4 of the Plan, along with a number of other qualifying sites. No controversy over any of the proposed ESA's arose during the public review process for the update, with the exception of Potato Knoll. Support for maintaining the natural character of the island was expressed by the Kentucky Nature Preserves Commission, as stated above and in earlier correspondence related to proposed development of the island. The City of Burnside requested that the ESA designation not be applied and that the island be leased for commercial development purposes.

Of all the islands proposed as ESA's, Potato Knoll exhibits the most numerous and varied environmental conditions qualifying it for that designation, as documented in the above narrative. It is also the most susceptible to development pressure, being totally surrounded by an existing marina concession lease, being very close to the mainland, near heavy population centers, and easily accessible by a major state highway. Designation as an ESA would afford some level of future protection without permanently prohibiting development if later justified for a better and higher public use. Not designating the island as an ESA would by no means imply that commercial development would likely be approved, again for reasons enumerated above. When conflicting interests compete for use of natural resources, the burden of proof for the type of use authorized should rest with the proposal that would result in a more permanent and irreversible commitment of resources. In the case of Potato Knoll, changing usage from the existing natural, undeveloped condition to one of commercial development in the event that decision was justified would be relatively easy. On the other hand, recognizing, in retrospect, that commercial development may not have been the most desirable alternative, converting the island back to a semblance of its former natural state, if possible, would likely take many decades. For this reason, the Nashville District, Corps of Engineers, has determined to designate Potato Knoll as an Environmental Sensitive Area.


Diane E. Parks
Chief, Operations Division

Date 4 May 2009